

19. (Amended) An apparatus for transmitting data in a network between first and second single-line digital subscriber line (SDSL) modems using a standard high data rate digital subscriber line (HDSL) frame format, the frame format including a field in each payload block for enabling a feature corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting the payload data, the apparatus comprising framing circuitry programmed to employ the field for transmission of a portion of the payload data.

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20. (Amended) At least one computer readable medium having computer program instructions stored therein for causing a network device to transmit data in a network between first and second single-line digital subscriber line (SDSL) modems using a standard high data rate digital subscriber line (HDSL) frame format, the frame format including a field in each payload block for enabling a feature corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting the payload data, the computer program instructions comprising first instructions for employing the field for transmission of a portion of the payload data.

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21. (Amended) A high data rate digital subscriber line (HDSL) data frame embodied in a carrier wave and comprising a plurality of overhead fields and a plurality of payload fields, each of the payload fields having an additional field associated therewith for enabling a feature corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting payload data, wherein the additional field includes a portion of the payload data.

22. (Amended) The HDSL data frame of claim 21 wherein the additional field comprises an F/Z bit field.

REMARKS

Claims 1-22 are pending in the application. Claims 1-3, 5, 6, 10-16, and 19-22 have been amended to address the issues raised by the Examiner. Favorable reconsideration of the application, as amended, is respectfully requested.

I. ALLOWABLE SUBJECT MATTER

Applicants acknowledge with appreciation the indicated allowability of claims 3, 4, 6, 7, 10, 12, 13, 15, and 16 subject to being rewritten to overcome the rejections, and amended to independent form.

For at least the reasons set forth below, it is respectfully submitted that all pending claims are now in condition for allowance.

II. OBJECTION TO CLAIM 21

Claim 21 stands objected to as including a typographical error. The claim has been amended to correct the error. Such amendment is believed to be sufficient to overcome the objections. Thus, withdrawal of the rejection is respectfully requested.

III. REJECTION OF CLAIMS 21 AND 22 UNDER 35 U.S.C. § 101

Claims 21 and 22 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. In rejecting these claims, the Examiner relies solely on the fact that “*the claimed data frame performs no functions.*” However, in order to constitute statutory subject matter, the claims need not recite specific functions. “**A computer-readable medium encoded with a data structure** defines structural and functional interrelationships ... and **is thus statutory.**” See, MPEP § 2106 IV.B.1(a) (emphasis added). Here, the claimed invention is directed to data frame embodied in a carrier wave, which specifies specific data structure, i.e., “each of the payload fields having an additional field associated therewith for enabling a feature corresponding to one of T1 and E1 transmission protocols” Therefore, MPEP § 2106 IV.B.1(a) applies, and claims 21 and 22 recite statutory subject matter.

Furthermore, an example similar to claim 21 and 22 is found in claim 13 at page 37 of “EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS, Example: AUTOMATED MANUFACTURING PLANT” (“GUIDELINES”) (<http://www.uspto.gov/web/offices/pac/dapp/oppd/pdf/compenex.pdf>). Claim 13 in GUIDELINES recites a computer data signal embodied in a carrier wave. Thus, claims 21 and 22 in the present application should follow the same path as indicated in “Table for Claim 13” at page 38 of GUIDELINES, in which claim 13 in GUIDELINES is concluded to be statutory. Applicants respectfully remind the Examiner that, in an examination flowchart in GUIDELINES, there is no requirement that the claimed invention perform a function to be statutory (<http://www.uspto.gov/web/offices/pac/dapp/oppd/pdf/flow.pdf>). Accordingly, the invention of claims 21 and 22 in the present application is statutory.

The Examiner is respectfully reminded that the court in *Lowry* approved a claim defining a memory containing a certain data structure. Specifically, the court held that claims are statutory as long as “the claims require specific **electronic structural elements** which impart a **physical organization on the information stored in memory.**” In re Lowry, 32 USPQ2d 1031, 1034 (Fed. Cir. 1994) (emphasis added). *Lowry* applies to the present invention, and thus, claims 21 and 22 are statutory in view of the case law, too.

For at least the reasons set forth above, claims 21 and 22 are believed to be allowable. Withdrawal of the rejection is respectfully requested.

IV. REJECTION OF CLAIM 19 UNDER 35 U.S.C. § 112

Claim 19 stands rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter of undue breadth. The claim language has been amended to recite “framing circuitry” in the Response dated November 20, 2001. Since claim 19 contains no “means for” language, claim 19 is not a single means claim, and thus, the single means rejection should be overcome.

Furthermore, the term “framing circuitry” does not cover every conceivable means for employing the field for transmission of a portion of the payload data. For example, the term “framing circuitry” excludes certain embodiments entirely implemented by software. Therefore, claim 19 is clearly not a case of the single means rejection where the claim language covers every conceivable means.

Applicants respectfully submit that the case law supports Applicants’ position. “The term **‘circuit’ alone indicates sufficient structure** to avoid application of section 112, paragraph 6.” Database Excelleration Systems Inc. v. Imperial Technology Inc., 48 USPQ2d 1533, 1537 (N.D. Cal. 1998) (emphasis added). “[N]either the fact that a ‘detector’ is defined in terms of its function, nor the fact that the term ‘detector’ does not connote a precise physical structure in the minds of those of skill in the art detracts from the definiteness of structure. Even though **the term ‘detector’** does not specifically evoke a particular structure, it **does convey** to one knowledgeable in the art **a variety of structures known as ‘detectors.’**” Personalized Media Communications LLC v. ITC, 48 USPQ2d 1880, 1888 (Fed. Cir. 1998) (emphasis added). Therefore, claim 19 is not a single means claim, and thus, should not be subject to the undue breadth rejection.

Claims 1-16 and 19-22 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 1, 11, 14, and 19-21 have been amended to recite “a feature corresponding to one of T1 and E1 transmission protocols.” Those skilled in the art would appreciate that this “feature corresponding to one of T1 and E1 transmission protocols” includes, for example, a feature enabled by an F bit (“DS1 framing bit,” see, e.g., page 27 of “Technical Report No. 28, February 1994, High-Bit-Rate Digital Subscriber Lines (HDSL),” a copy of which is attached to this Response), or a Z bit (“Additional overhead bits,” see, e.g., page 132 of “ETR 152, December 1996,” a copy of which is attached to this Response). Therefore, the amended claim language “a feature corresponding to one of T1 and E1 transmission protocols” is not unclear, and thus, the rejection is believed overcome.

Regarding claim 20, the term “at least one” means that it includes a singular element and

a plurality of the elements. Thus, the term is clear. Furthermore, MPEP § 2173.05(h) II. "OR" TERMINOLOGY specifically allows the use of the phrase "at least one." The term "at least one" was held to be acceptable and not in violation of 35 U.S.C. § 112, ¶ 2, *see, e.g.*, In re Gaubert, 187 USPQ 664, 668 (C.C.P.A. 1975). Withdrawal of the rejections is respectfully requested.

V. REJECTION OF CLAIMS 1, 2, 5, 8, 9, 11, 14, AND 19-21 UNDER 35 U.S.C. §102(e)

Claims 1, 2, 5, 8, 9, 11, 14, and 19-21 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,246,695 ("Seazholtz"). Claims 1-3, 5, 6, 10-16, and 19-22 have been amended to further clarify the difference between the present invention and Seazholtz, and not for any reason relating to patentability. Withdrawal of the rejections is respectfully requested for at least the following reasons.

The invention of claim 1 relates to using a field in each payload block of an HDSL frame format for enabling a feature corresponding to T1 or E1. The present invention uses the field for transmitting a portion of the payload data. In a conventional method, the field was not used for transmitting the payload data. Rather, the field was used for enabling one of T1 or E1 features in a conventional method. Specifically, the field was conventionally used as an F bit in the T1 protocol, and as a Z bit in the E1 protocol. Therefore, Seazholtz fails to teach or suggest the feature recited in claim 1.

Examiner contends that an HDSL frame format is inherent in Seazholtz. Even if, *arguendo*, Seazholtz inherently suggests a conventional use of an HDSL frame format, this does not mean that Seazholtz teaches or suggests the specific use of the field recited in claim 1. Here, Seazholtz is completely silent as to how to use each field in the payload block. Thus, at most, Seazholtz suggests the conventional way of using the HDSL frame format.

On the other hand, the present invention utilizes the field corresponding to the T1 or E1 feature for transmission of a portion of the payload data, which was not done by a conventional method. Since the invention of claim 1 utilizes the field in a way different from the conventional HDSL frame format, Seazholtz cannot be said to anticipate claim 1. For the reasons set forth in connection with claim 1, claims 2, 5, 8, 9, 11, 14, and 19-21 are also believed to be allowable over Seazholtz. Withdrawal of the rejections is respectfully requested.


VI. REJECTION OF CLAIM 20 UNDER 35 U.S.C. §103

Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Seazholtz. For at least the same reasons set forth in connection with claim 1, claim 20 is believed to be allowable over Seazholtz. Withdrawal of the rejections is respectfully requested.

VII. CONCLUSION

Applicants believe that all pending claims are in condition for allowance, and respectfully requests a Notice of Allowance at an early date. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 510-843-6200.

Respectfully submitted,
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APPENDIX -- VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 1-3, 5, 6, 10-16, and 19-22 have been amended as follows:

1. (Amended) A method for transmitting payload data in a network between first and second single-line digital subscriber line (SDSL) modems using a standard high data rate digital subscriber line (HDSL) frame format, the frame format including [at least one] a field in each [data] payload block for [implementing] enabling a feature [relating] corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting the payload data, the method comprising employing the [at least one] field for transmission of [selected payload] a portion of the payload data.

2. (Amended) The method of claim 1 further comprising:

receiving the payload data as a data stream with the first SDSL modem;

generating a sequence of data frames in the HDSL frame format with the first SDSL modem; and

transmitting the sequence of data frames to the second SDSL modem.

3. (Amended) The method of claim 2 wherein generating the sequence of data frames comprises:

taking the [selected payload] portion of the payload data from the data stream and storing the [selected payload] portion of the payload data in a register associated with the first SDSL modem, the register corresponding to the feature;

using the [selected payload] portion of the payload data in the register to generate the sequence of data frames, the [selected payload] portion of the payload data occupying the [at least one] field in the [data] payload [blocks] block.

5. (Amended) The method of claim 1 further comprising:

receiving the payload data as a sequence of data frames in the HDSL frame format from the first SDSL modem with the second SDSL modem; and

decomposing the sequence of data frames into a data stream with the second SDSL modem.

6. (Amended) The method of claim 5 wherein decomposing the sequence of data frames comprises:

taking the [selected payload] portion of the payload data from the [at least one] field in the payload blocks of the sequence of data frames and storing the [selected payload] portion of the payload data in a register associated with the second SDSL modem, the register corresponding to the feature;

inserting the [selected payload] portion of the payload data in the register into the data stream.

10. (Amended) The method of claim 1 wherein the [at least one] field comprises an F/Z bit field.

11. (Amended) A single-line digital subscriber line (SDSL) modem for transmitting a sequence of data frames according to a standard high data rate digital subscriber line (HDSL) frame format, the frame format including [at least one] a field in each [data] payload block for [implementing] enabling a feature [relating] corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting the payload data, the modem comprising:

framing circuitry for receiving an incoming data stream and generating the sequence of data frames, the framing circuitry employing the [at least one] field for transmission of [selected payload] a portion of the payload data from the incoming data stream; and

modulation circuitry for modulating and transmitting the sequence of data frames.

12. (Amended) The modem of claim 11 further comprising a register associated with the framing circuitry and corresponding to the feature, the framing circuitry being operable to take the [selected payload] portion of the payload data from the data stream, store the [selected payload] portion of the payload data in the register, and insert the [selected payload] portion of the payload data in the register into the [at least one] field in the payload blocks of the sequence of data frames.

13. (Amended) The modem of claim 12 wherein the register comprises an F/Z bit register and the [at least one] field comprises an F/Z bit field.

14. (Amended) A single-line digital subscriber line (SDSL) modem for receiving a sequence of data frames in a standard high data rate digital subscriber line (HDSL) frame format, the frame format including [at least one] a field in each [data] payload block for [implementing] enabling a feature [relating] corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting the payload data, the modem comprising:

demodulation circuitry for receiving and demodulating the sequence of data frames; and

framing circuitry for receiving the demodulated sequence of data frames and generating a data stream, the framing circuitry inserting [selected payload] a portion of the payload data stored in the [at least one] field into the data stream.

15. (Amended) The modem of claim 14 further comprising a register associated with the framing circuitry and corresponding to the feature, the framing circuitry being operable to take the [selected payload] portion of the payload data from the [at least one] field in the payload blocks of the sequence of data frames, store the [selected payload] portion of the payload data in the register, and insert the [selected payload] portion of the payload data in the register into the data stream.

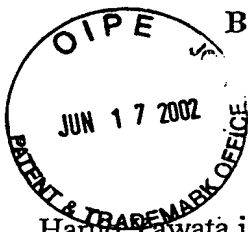
16. (Amended) The modem of claim 15 wherein the register comprises an F/Z bit register and the [at least one] field comprises an F/Z bit field.

19. (Amended) An apparatus for transmitting data in a network between first and second single-line digital subscriber line (SDSL) modems using a standard high data rate digital subscriber line (HDSL) frame format, the frame format including [at least one] a field in each [data] payload block for [implementing] enabling a feature [relating] corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting the payload data, the apparatus comprising framing circuitry programmed to employ the [at least one] field for transmission of [selected payload] a portion of the payload data.

20. (Amended) At least one computer readable medium having computer program instructions stored therein for causing a network device to transmit data in a network between first and second single-line digital subscriber line (SDSL) modems using a standard high data rate digital subscriber line (HDSL) frame format, the frame format including [at least one] a field in each [data] payload block for [implementing] enabling a feature [relating] corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting the payload data, the computer program instructions comprising first instructions for employing the [at least one] field for transmission of [selected payload] a portion of the payload data.

21. (Amended) A high data rate digital subscriber line (HDSL) data frame embodied in a carrier wave and comprising a plurality of overhead fields and a plurality of payload fields, each of the payload fields having [at least one] an additional field associated therewith for [implementing] enabling a feature [relating] corresponding to one of T1 and E1 transmission protocols and not conventionally used for transmitting payload data, wherein the [at least one] additional [fields are used for transmitting] field includes a portion of the payload data [on a single-line digital subscriber line (SDSL)].

22. (Amended) The HDSL data frame of claim 21 wherein the [at least one] additional field comprises an F/Z bit field.



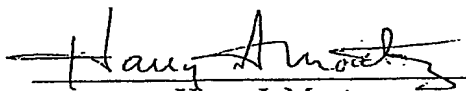
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